

Commodity Spotlight



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World Meat Trade Shaped by Regional Preferences & Reduced Barriers

World trade in meats has grown rapidly since the mid-1980's. The trade primarily involves shipping cuts of meats and edible offal rather than carcasses or live animals. Emerging patterns of trade are due only partially to relative advantages in countries' production costs. The presence or absence of trade barriers has also influenced trade patterns, as have disparities in preferences among trading partners for particular meat cuts.

In the last 15 years, U.S. exports of the three major meats—beef, pork, and poultry meat—have grown faster than other countries' meat exports, and the U.S. has evolved from primarily a meat importer to a large exporter. U.S. exports totaled \$6.5 billion in calendar 1998, compared with \$2.8 billion in imports. On a value basis, the U.S. has become a net exporter (exports surpassing imports) of beef, pork, and poultry, with the export value of each exceeding \$1 billion. Nevertheless, the

This article summarizes a study by USDA's Economic Research Service of world meat trade patterns, the surge in U.S. meat exports, and future trade issues.

U.S. remains the world's largest beef importer and a major pork importer.

The Impact of Trade Barriers

Market supply and demand factors within nations determine trade potential, but tariff and nontariff barriers can shift market supply and demand, preventing or inhibiting trade. While many serious barriers remain, significant reductions in barriers since 1985 have advanced the growth of world meat trade. Japan's beef imports surged following the dismantling of its quota system for beef imports (negotiated in the 1988 Beef-Citrus Agreements), and reductions in tariffs since 1995 (negotiated in the Uruguay Round). South Korea opened its beef market with an import quota in 1988, and has raised the quota level several times. Large increases in meat trade in North America have been associated with the U.S.-Canada and NAFTA agreements, and expanded meat trade within South America has been associated with the MERCOSUR agreement.

In the 1990's, major new markets emerged in Russia, especially for poultry, after the breakup of the Soviet Union and ensuing policy changes. China and Hong

Kong became fast-growing markets for poultry as China allowed imports to increase. Proposed terms of World Trade Organization entry negotiated with China and Taiwan, as well as the end of Korea's pork and poultry meat quotas in 1997 and of its beef quota in 2001, mark the fall of barriers that will affect future trade flows.

Sanitary rules can be a key nontariff barrier also affecting meat trade. Disease-free countries are very cautious about imports of fresh, chilled, and frozen meats, which can bring pathogens into a country. In general, these countries ban imports from areas where targeted diseases occur. Once various national boards and/or international panels such as the World Animal Health Organization recognize a country as free of a disease, it can export to countries that monitor imports in order to control the disease.

The U.S. and other countries have eradicated certain infectious diseases among meat animals, at considerable cost. The disease-free status of the U.S.—free of major animal diseases such as foot-and-mouth, hog cholera, and Newcastle—has benefited its meat exports. Meat imports into the U.S., on the other hand, have been constrained by disease concerns. For example, U.S. imports of poultry meat are small, in part because potential suppliers like Mexico and China are not recognized as free of Newcastle disease. In recent years, Uruguay, Argentina, and the Mexican state of Sonora have achieved U.S. recognition as free of certain diseases. These regions have growing prospects of shipping approved meats to the U.S.

Lower Costs Boost Exports

Meat exporting areas tend to be located near large feed supplies to minimize costs of transporting bulky feeds. Feed production requires land, and countries with large areas of land suited for feed production dominate meat exports. Areas that produce abundant grain, such as the U.S., Canada, Brazil, and the European Union (EU), are major exporters of pork and/or poultry meat. The U.S. and Canada also feed grains and meal to cattle, for further weight gain and improved quality, and export beef. Countries with large pasture area produce and export grass-fed beef (Australia, Argentina, and New Zealand).

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Meat animal production in a number of other countries depends on imported grains, meals, and roughage. Easing of meat import barriers in some of these countries in the last 15 years has expanded opportunities for exporters. Partially because it can be more efficient to ship meat than feeds, countries like Japan and Korea are importing a rising share of their meat consumption as import barriers fall.

Supplying meat involves not only animal production, but also slaughter, processing, and distribution. Costs of these operations vary significantly across countries, and can affect relative trade competitiveness. For example, some studies have concluded that in the recent past the costs of processing cattle in Australia or hogs in Canada were higher than in the U.S. due to lower labor costs in large, modern U.S. plants. Lower labor costs appear to give Brazil, China, and Thailand an advantage over the U.S. and other countries in deboning and processing broiler meat.

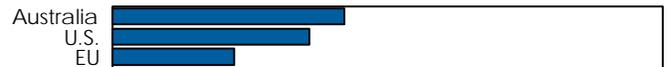
Economies of size or scale can lower the cost of meat processing and marketing and thereby affect meat trade. As the size of the processing plant increases, meat processing costs drop, and as meat firms are consolidated into larger businesses the costs of marketing, research and development, and management can be spread over larger production complexes and the per-unit cost lowered. Economies of size require sufficiently large markets to absorb the processed meat. Denmark's pork industry, relatively large compared with its population, depends on export markets in the EU, Japan, the U.S., and elsewhere. Though Australia's population is relatively small, beef plants can achieve economies of size with sufficient export outlets.

Supplying meat cuts to foreign markets involves particular transportation requirements. Until the 1980's, transport by ship was limited largely to frozen meat. However, advances in containerized meat shipment over the last 15 years have allowed chilled, unfrozen beef and pork to cross the seas by ship from North America and Oceania to Japan, and still have sufficient shelf life to compete well upon arrival (AO January/February 1999). In many markets, fresh or chilled meat is preferred over frozen meat for some uses, and chilled meat exports are expected to grow.

U.S. Is a World Leader in Meat Trade

Top 3 exporters

Beef & veal



Pork



Poultry



Top 3 importers

Beef & veal



Pork



Poultry



0 500 1,000 1,500 2,000 2,500 3,000
1,000 tons

1998 data. These exports account for 66 percent of meat exports, and the imports for 58 percent of meat imports, from USDA's Production, Supply, and Distribution database. Excludes intra-EU-15 trade. Some China/Hong Kong data are from customs statistics of China.

Economic Research Service, USDA

Differing Preferences Underlie Trade Gains

Some meat trade flows are strongly influenced by factors other than costs of supplying a market (animal purchase, processing, and transport). U.S. exports of poultry meat and offal (hearts, livers, feet, etc.) are an example. Their growth exceeded that of beef and pork exports since the mid-1980's. Wide differences in U.S. and foreign consumer preferences for broiler cuts and offal are a likely reason.

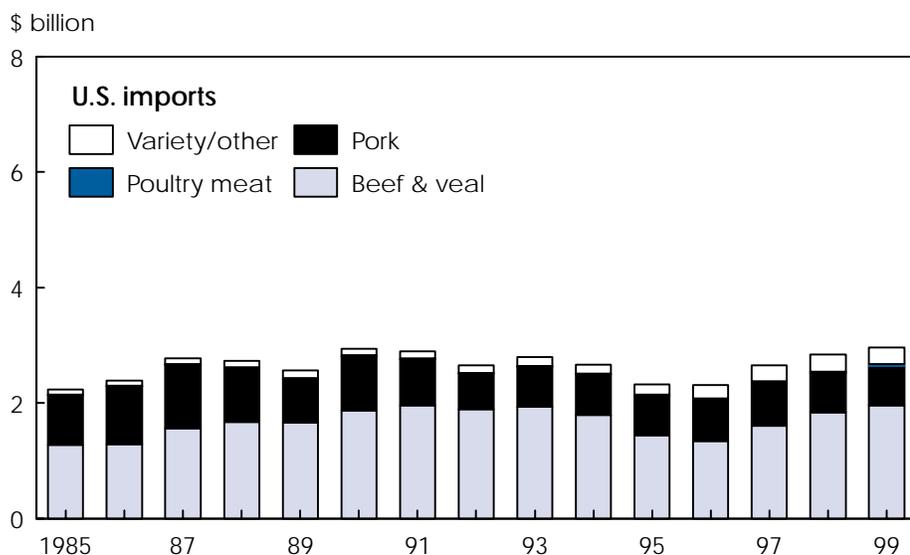
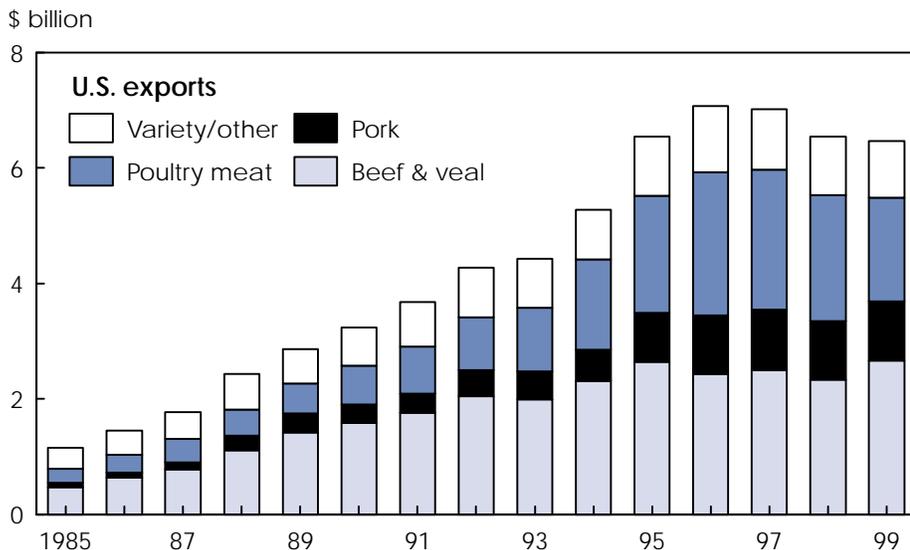
U.S. consumers favor chicken breasts, paying higher prices than for dark meat—legs, thighs, and wings. There is little U.S. demand for chicken feet. Much of the rest of the world has opposite preferences: dark meat is preferred, and prices for chicken legs are typically higher than for breasts. For example, although broiler production costs are higher in Japan than in the U.S., partly because Japan's feed must be imported, breasts from domestic broilers are priced lower in Japan than in the U.S. In Japan, breasts are a low-valued byproduct of broilers grown for legs and other dark meat. In the U.S., on the other hand, legs, dark meat, and offal are valued lower than breasts.

This difference in preferences provides a marketing opportunity for U.S. poultry meat exports. U.S. firms export wings, feet, other dark meat, and offal to China and Hong Kong; legs to Japan; and dark meat and offal to Mexico. These export markets pay more for such cuts than U.S. consumers. In addition, low U.S. prices of chicken-leg quarters make them affordable to Russian consumers, who also generally prefer dark meat. U.S. exports of breast meat are small relative to dark meat, except shipments to Canada where preferences are similar to those in the U.S.

Differences in poultry preference among countries can lead to complementary trade flows. Japan exports modest quantities of chicken feet to Hong Kong, and China ships boneless legs and processed chicken to Japan. Newcastle disease in chicken flocks outside the U.S. currently precludes some potential import flows into the U.S., but as disease issues are overcome, bilateral trade in parts may occur on a wider scale, particularly between the U.S. and Mexico. Mexican tastes for dark broiler meat and offal complement U.S. tastes for chicken breasts.

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The U.S. Has Become a Net Exporter of Meat



Economic Research Service, USDA

Trade data on international beef and pork markets often refer only to “cuts” in general rather than identifying the specific cuts crossing borders. This obscures global diversity in preferences for red meat cuts. However, in some markets, the market value of a slaughtered hog or steer is clearly determined much differently than in the U.S. The market value of U.S. hogs is concentrated in the muscle meats, while internal organs (e.g., heart, liver, stomach, intestines) typically account for only 5 percent of the slaughtered animal’s value. In Taiwan, for example, the valuation is different. Internal organs often provide

15-20 percent of the value of a slaughtered hog. The high price of hearts, tripe, and other offal in foreign markets encourages annual U.S. exports of over \$500 million of beef and pork variety meats.

Quality preferences for certain products also vary. North America and East Asia prefer grain-fed, marbled beef, while Oceania and South America produce and consume leaner grass-fed beef. Pork quality factors in Japan—where tolerance is low for pale or soft meat—differ from those in North America. These differences lead to significant trade flows, such as the

export of grass-fed beef from Oceania to North America and Japan for grinding into hamburger mixes. Denmark markets pork from heavier-weight pigs with more fat marbling to Germany, and ships pork from smaller, leaner pigs to the United Kingdom, where bacon with less fat and more meat is preferred.

Firms with multinational marketing strategies base their trade on international differences in demand. They send carcass parts and offal to markets where they can expect the highest return. Some firms also have a multinational production strategy, with production bases in two or more countries. This allows them to reduce risks such as weather, disease, and exchange rate movements, and to take advantage of different resource bases. The largest meat processing firms are U.S.-based and have production facilities in other countries as well, including Canada, Australia, Mexico, and China.

The existence of markets linked by firms with international marketing strategies, but differing in ability to produce meat and in their preferences, means that intra-industry trade, with countries importing and exporting different cuts from the same animal species, is likely to expand. Intra-industry marketing may expand U.S. meat imports and exports in the future. If future reductions in trade barriers and advances in animal disease control occur, meat trade flows will increase.

An increase in imports would lower U.S. prices for some products, benefiting consumers. The U.S. industry, with its ability to supply large amounts of most kinds of meat, is likely to find new international markets where U.S. meat has a cost advantage and/or where product preferences complement those of U.S. consumers. U.S. advantages—disease-free status, abundant forage and domestically grown feed, as well as economies of size—position the U.S. industry to profit from greater freedom in global meat trade. Expanded U.S. meat exports in the future will benefit meat processing firms and farms producing meat animals. **AO**

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Major U.S. Partners in Meat Trade

Japan is the leading market for U.S. meat exports, taking \$2.4 billion, or over 36 percent of U.S. meat exports in 1998. Beef to Japan constituted almost 20 percent of the total value of U.S. meat exports to all destinations. Scarcity of pasture makes calf production costly in Japan. Feed production is limited, and Japan must import most feeds, usually from the U.S. Labor costs in Japan's processing plants are high relative to the U.S. and farms are often too small to achieve economies of size. Thus, meat production costs in Japan are higher than in the U.S. and some other exporting countries, so Japan increasingly imports its meats. In 1998, Japan was second only to the U.S. in beef imports, was the world leader in pork imports (excluding intra-EU trade), and was the third-largest poultry meat importer, following Russia and China/Hong Kong.

Japan imports red meats only from countries free of foot-and-mouth disease, and the U.S. is the largest supplier. Consumer preference for grain-fed beef supports the U.S. market share in Japan—much of Australia and New Zealand's beef is grass-fed. Improved trade data and further research will determine how Japan differs from the U.S. in the type of red meat cuts preferred, but preference differences in variety and poultry meats are apparent. Japan imports U.S.-supplied beef tongues, livers, other organs, and frozen chicken legs, all valued more highly in Japan than in the U.S., and amounting to almost \$500 million in U.S. exports.

Mexico, taking more than \$900 million of U.S. meat exports in 1998, is the second-largest U.S. market. Like Japan, Mexico purchases all the major meats—beef, pork, poultry, and variety meats. U.S. grain-fed beef sells well there, as most of Mexico's domestic production is grass-fed. Mexican tastes for dark broiler meat and variety meats complement U.S. tastes. Mexico's proximity to the U.S. and reductions in trade barriers under NAFTA have stimulated growth of U.S. exports.

Russia emerged as a major market for U.S. poultry meat, variety meat, and pork after the breakup of the Soviet Union and its centrally planned economy. Russian producers have had difficulty organizing markets to produce meat profitably, and high production costs encourage competition from imported meats. Production has fallen and meat imports have climbed, even though Russian consumers became poorer and their meat consumption fell (AO June/July 1999). In 1998, Russia was the world's third-largest beef importer, second-largest pork importer, and leading importer of poultry meat.

Russian imports of U.S. meats exceeded \$700 million in 1998, after peaking in 1996 at \$1.1 billion. Consumers found the prices of U.S. dark broiler and variety meat attractive. The ruble's high value was a key factor in encouraging U.S. meat imports, which declined after the currency depreciation in fall 1998.

Canada was the fourth-largest U.S. export market for meats in 1998, with sales at almost \$700 million. Beef, poultry meat, and pork are the major meat exports to Canada. Canada's supply management of broilers ensures relatively high domestic prices. U.S. exports of poultry meat, aided by geographic proximity, are priced lower than Canadian poultry parts. Canada does have tariff-rate quotas, designed to partially protect the Canadian poultry industry.

The situation is different for beef and pork. Canada exported \$1.2 billion of the red meats to the U.S. in 1998, much more than it imported. The end of Canada's subsidies to grain transportation increased domestic supplies and reduced feed costs in western Canada, making it more attractive to feed the grain locally. The nearby, open U.S. border has encouraged North American firms to take a regional marketing perspective, and their investments in Canadian slaughter and processing plants are bringing down their total costs of producing meat.

The fifth-largest market for U.S. meats (at \$550 million) is Hong Kong, together with China. Because Hong Kong re-exports large quantities to the rest of China, while also importing meat from China, the markets are tightly linked, and treating them as one market while reviewing trade is convenient. Both markets absorb U.S. poultry meat and offal, and also pork and beef variety meats and muscle cuts. With a large population, rising income, and tastes that complement U.S. preferences, China is a key future market.

Leading sources of U.S. meat imports, besides Canada, are Oceania and the EU. Australia and New Zealand, both with large grazing areas, in 1998 shipped nearly \$800 million in frozen, grass-fed beef to the U.S. for grinding into hamburger mixes, and about \$170 million of lamb, a regional specialty. Significant investment by U.S. and Asian firms in Oceania's cattle sector help tie that production to U.S., Japanese, and Korean markets. Growth in Asian demand for grain-fed beef imports in the last 15 years led to diversion of some grass-fed cattle destined for the U.S. market to become grain-fed beef for the Asian market. U.S. imports from the EU, mainly frozen and processed pork from Denmark, have stabilized in recent years.

U.S. exports, 1998

Country	Meat	Value \$ million	Share of total
			U.S. meat exports Percent
Japan	Beef & veal	1,302	20
Japan	Pork	596	9
Russia	Poultry meat	535	8
China/Hong Kong	Poultry meat	408	6
Mexico	Beef & veal	398	6
Japan	Variety meats	310	5
Canada	Beef & veal	285	4
Mexico	Poultry meat	231	4
Canada	Poultry meat	231	4
South Korea	Beef & veal	142	2
Total, top 10 shares		4,439	68

Totals may not add due to rounding.
Economic Research Service, USDA

U.S. imports, 1998

Country	Meat	Value \$ million	Share of total
			U.S. meat imports Percent
Canada	Beef & veal	736	26
Australia	Beef & veal	468	16
Canada	Pork	416	15
New Zealand	Beef & veal	329	12
EU	Pork	230	8
Argentina	Beef & veal	118	4
Brazil	Beef & veal	102	4
Australia	Lamb/mutton	97	3
New Zealand	Lamb/mutton	74	3
Canada	Variety meats	50	2
Total, top 10 shares		2,621	92